

# On Design Of A New Surface Force

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SUBJECT AREA - National Military Strategy

## EXECUTIVE SUMMARY

TITLE: ON DESIGN OF A NEW SURFACE FORCE

I. Theme: To propose a new and more affordable SURFACE ACTION GROUP (SAG) for near term U. S. maritime needs.

II. Thesis: Low mix surface action groups, fully connected and augmented by enhanced capability replenishment ships can perform a very broad range of tasks, and fill in the gaps left by insufficient numbers of more capable units.

III. Discussion: A new surface force must be able to be procured in sufficient numbers to provide the scope as well as depth of coverage demanded by a diverse, global threat characterizing the early 21st century. This imperative for numerical sufficiency tends to drive ship designs toward economy, i.e. less cost. Since unit cost and capability are more than not directly related, some manner of compromise between quality and quantity will have to be made. To offset the limitations of a low mix surface navy, robust and fully integrated C3, coupled with an enhanced replenishment ship, could become powerful, mobile, flexible grids of warships where individual units would be employed as weapons systems. Similar to the individual gun systems of a battleship, these separate ships would be controlled centrally, operating synergistically according to the mission at hand. A key element of this new notional sag is the enhanced capability replenishment ship serving all of the traditional replenishment functions as well as a ready service locker for remotely controlled ordnance. The immense capacities of modern RORO/Cargoe ships affords a quantum leap in SAG capability.

IV. Summary: New technology, particularly in C4I, have made the distinctions between high and low mix surface naval forces murky. Innovative mating of design and doctrine can lessen our dependence on the few capital ships expected to reside in our navy in the near term.

V. Conclusions: The United States Navy's need for powerful, effective, and deployed SAGs is even more necessary as we move into the 21st century. SAGs made of frigate squadrons and an enhanced capability replenishment fit the bill both operationally and economically.

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### OUTLINE

Thesis Statement: Low mix surface action groups (SAG), fully connected and augmented by enhanced capability replenishment ships can perform a very broad range of tasks and fill in the gaps left by insufficient numbers of more capable units.

#### I. INTRODUCTION

- A. Global Change and Historical Perspective
- B. Roles and Missions

#### II. CHALLENGES

- A. Economic Considerations and Design
- B. Form and Function Development

#### III. CLIMATE

- A. Implications of the "New World Order" on Maritime Strategy
- B. Regionalism
- C. Support for Deployed Surface Forces

#### IV. CAPABILITIES NEEDED AND SATISFIED

- A. Spectrum of Near Term Maritime Roles and Missions
- B. Support for Deployed Surface Forces
- C. Measures of Maritime Power
- D. New Technology and Doctrine
  - 1. Hardware Design
  - 2. Doctrine and Application

#### V. CONCLUSION

- a. Wrap Up: Consolidate Argument

## ON DESIGN OF A NEW SURFACE FORCE

By LCDR Mark G. Fischer, USN

With the fall of the eastern Bloc and the concomitant rise of global regionalism with its complex multiple dependencies, a "new world order" is evolving. Although its nature has not been fully revealed there is little doubt that international economic, political, and military climates are in flux. As a result, the assumptions and precepts used to formulate the roles and missions of today's

United States Navy and surface fleet specifically, may not necessarily be appropriate for future U. S. Maritime requirements.

The roles and missions of today's U. S. Navy are largely based on a bipolar confrontation pitting the Soviet Union with the Warsaw Pact and the United States with NATO. Our Maritime Strategy focuses on this admittedly awesome threat while neglecting other, perhaps more likely, scenarios. "Third World" engagements, regional contingencies, and coalition confrontations are simply not addressed in sufficient detail. The simplistic, easily understood construct, which characterized east west bipolarity, has worked reasonably well up to now. But with the thawing of the Cold War and the changes taking place globally, can we be so sure of the future?

As much as this apparent thawing has outwardly reduced Super Power tensions, it has also spawned or at least revealed, the emergence of new power loci dispersed around the globe. These changes, along with other associated processes, have increased the opportunity for virilant regional instability. Hence, a critical review of projected naval requirements must be couched within this evolving dynamic.

Tight budgets, revolutionary technical advancements, competing national fiscal demands, as well as more dynamic and less palpable global military threats have irreversibly

changed the capacities of naval warships as well as the complexity of the military challenges they face. Funding will no doubt be more difficult to acquire in the near term. Understanding the implications of these changes is difficult, responding to and shaping them often painful, but America's Navy cannot rest on laurels nor build towards yesterday's threat scenarios. In this context a critical analysis of naval force structure and weapons systems design is warranted to support the mating of form and function to these still evolving requirements.

This paper reviews some of the evolving threat challenges, roles and missions appropriate for our near term navy, and offers support for the development of a new surface action group (SAG) designed for the sophisticated environment of the early 21st century.

#### CHALLENGES

Navy ships are not optimized systems, they are conglomerations of compromises theoretically incorporating the best mix of solutions for the problems they will face. The extreme high cost of ships procurement and their long service life are diametrically opposed forces. The immense cost of building warships necessitates an economy of investment based on a solid connection between "form and function". The resulting effort to make "every dollar count" can tend to reduce capability and increase specialization for the sake of efficiency and economy. However, the long

service life expected of ships demands that they be able to cope with a variety of circumstances and have enough reserve potential to meet threats not yet known or conceived. Therefore, it is imperative for naval leadership in conjunction with national procurement authority to understand not only what naval power is, but more what it can be and how it could be employed in future geopolitical competition. This understanding must be applied when designing and procuring a fleet for tomorrow, yet that task is immensely difficult, incumbered by the need to prognosticate what will be needed and how it will be used. It is a task demanding openmindedness, keen foresight and inherent flexibility built in both ships and employment doctrine.

Associated with the process of roles and missions development matched to a ship design is how hardware capability as much defines the end use of the ship as the ship is a result of the defined roles and missions statement. With this in mind, it is not enough to ponder how today's ships fit the requirements of the year 2000 but rather what nature of ships is needed to shape them? How can alternative designs actually shape future doctrine and courses of action? Perhaps a different emphasis in force structure and or a new design philosophy is called for. We must move beyond a reactionary design context and embark on creating the future fleet to mold maritime strategy as we wish it to be.

## CLIMATE

The much heralded end of the cold war and the world wide change in demography and loci of power have resulted in a world moving rapidly toward regionalism. This implies the potential emergence of multiple, decentralized threats, remote from the U. S. both politically and geographically. Although the Soviets will continue, and given recent examples of internal volatility, may become even more of a threat, new regional powers will increasingly demand larger measures of our attention. Our dependence on foreign markets and raw materials will certainly deepen. These facts alone strongly support the need to increase our naval capability. The move toward global regionalism with its resultant myriad of economic and military encumbrances will make unilateral U.S. intervention more risky and challenging. In some areas where regional powers have matured, the U.S. Navy may not be able to concentrate superior forces in the initial stages of confrontation. This trend towards multilateralism makes potential threats diverse in character, and diffuse in location. The easy access and plethora of sophisticated and potent weaponry will assure that regional military powers will be formidable. A disturbing fall out of this is that multiple confrontations, at different locations, may occur and if by chance or clever design could render timely, and cost effective U. S. intervention impossible. We must be on the scene early and in strength to prevent our national

interests from being "overtaken by events".

Effective U.S. Naval intervention will thus be measured, in part, by its ability to operate on parallel fronts as opposed to the sequential, graduated responses which characterized the U.S.-Soviet confrontations of the post WW II era. Large numbers of ships at sea, dispersed around the globe, will become more important if we are to continue to play an active, integral global role.

A particularly disturbing aspect of this broadening of military power includes the expansion of the number of countries likely to possess nuclear weapons by the year 2000. This spector puts in doubt the deterance efficacy previously enjoyed by remotely based strategic nuclear weapons. The question of whether or not strategic nuclear hegmony can ever again be assumed, by a single power, on a global scale is a real one. Not only is strategic nuclear supremacy irrelevant in a regional context, our continued deemphasis of a credible Strategic Defense Initiative (SDI) further supports the need for strong conventional forces at sea.

For instance India is in the process of building a very capable navy which, in our absence, already dominates the Indian ocean. In a recent article in the Naval War College Review this assessment regarding the Indian Navy was made: ". . . according to current plans, its overarching strategy of deterrence by denial will be permanently cemented into a drastic alteration of the regional balance of power.



Implicitly, that will make India a power broker capable of conditioning all regional political outcomes...". (11:53)

The operating environment our "near term" navy must be capable of effectively performing in includes missions from the political end of the spectrum all the way up to nuclear war. Naval surface combatants are particularly well suited for this. A new frigate must be flexible in terms of the nature as well as the robustness of the threats it is capable of prevailing over.

Quoting Rear Admiral Mahan, ". . . the backbone and real power of any navy are the vessels which, by due proportion of defensive and offensive powers, are capable of taking and giving hard knocks." (13:132)

A new surface force must be able to be procured in sufficient numbers to provide the scope as well as depth of coverage demanded by a diverse, global threat. This imperative for numerical sufficiency tends to drive ship designs toward economy, i.e. less cost. Since unit cost and capability are more than not directly related, some manner of compromise between quality and quantity will have to be made.

Sergei Gorshkov, Admiral Of Fleet Of The Soviet Union stated: "The point is to concentrate in each ship the maximum combat possibilities with the most economic 'expenditures' of size and displacement, and ensure the effective solution of the tasks with minimum economic

outlay." (3:186)

Decisions which result in navies are compromises; the task is to weight them in the best manner.

#### CAPABILITIES

Naval forces can exert influence by merely existing as "fleets in being" if the threat of their use and the power of their punch is sufficiently credible in the eyes of our competitors. This is the most innocuous role assumable by a fleet. On the other hand, missions for deployed surface fleets run the gamut from showing the flag in foreign ports, to the prosecution and destruction of an enemy's nuclear ballistic missile submarines. The range of challenges posed by today's threats is already staggering but the broadening playing field posed by emerging regional powers forces us to move ahead more boldly. High end verses low end force ratios are no longer zero sum arguments. Innovative application of existing concepts and capabilities can assure the continued vitality of our navy well into the 21st century.

The conduct of at-sea exercises, both unilateral and combined with other navies, provides much more than training, it is a tangible display of capability and national interest. Their impact can only be felt if they are performed often and in theater. Flexible and robust fleet dispositions must be able to effectively engage threats across the full spectrum of modern naval warfare as

well as serve in the capacity of goodwill and deterrence; missions for which a surface ship is uniquely qualified. James Cables in his book, *Gunboat Diplomacy*, said: "Perhaps the greatest weakness of the modern submarine . . . is that it has no equivalent to the graduated ladder of violence enjoyed by surface warships". (1:32)

The diversity and sophistication of the threat requires that robustness be measured not only by offensive and defensive capacities for ordnance delivery but also by the ability to operate alone and removed from mutually supporting fleet concentrations such as carrier battle groups. Warships must be able to sail all of the world's oceans and have the onstation endurance to exact a reaction.

However, firepower and mass remain principles of war and low mix ships such as frigates have limited capabilities. So what can be done when the punch of a Carrier Battle Group or Battleship Surface Action Group is not available?

When circumstances demand, the oft used concept of synergism should characterize the result of associating individual units into squadrons of frigates. These deployed frigate squadrons can serve as forward deployed strike forces capable of substantial firepower whenever it is needed in the maritime theaters of the world. The concept requires they possess a very high level of interoperability and access to capacities not resident in the individual frigates.

Interoperability here means weapons, sensors, and C3 (Command, Control, and Communications) functions which are significantly enhanced when individual units are combined to form larger dispositions. This concept is not new; U.S. Navy ships routinely practice this, albeit to a lesser extent, as a matter of doctrine. The difference in this proposal is to the degree with which individual ships could mutually support each other.

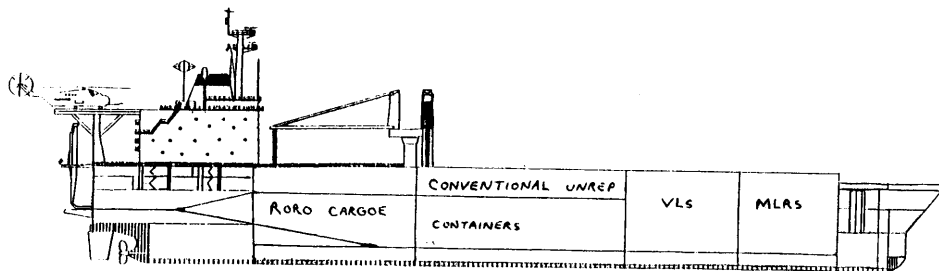
Today's C3 capabilities can link ships so that data available to one can be available to all. Ship positioning data and weapons status as well as engagement orders all make up the data stream now being shared by U.S. naval ships. The challenge is to make all this C3 centrally intelligible, robust, and fully integrated with command. Doing this could result in a powerful, mobile, flexible grid of warships where individual ships could be employed as weapons systems, much like batteries of guns on a single battleship. This can help to make the numbers verses quality compromise less significant. Establishing grids of low mix squadrons, perhaps made up of a new frigate class, also decentralizes Battleforce combat power while not sacrificing coordinated offensive and defensive operations.

Other important requirements include firepower and sustainability. Both of these can be met with sufficient numbers of frigates, as illustrated above, and if we use replenishment ships for more than just floating fuel, stores, and ammo depots. With today's capabilities these

ships could serve as ready magazines for the warships they are tasked to support. There is no reason why cruise missiles and surface to air missiles could not be launched from the replenishment ship directly and guided to their targets by the supported vessel. In other words ammunition ships could transfer needed ordnance without ever having to pass a line. This would be an electronic transfer of combat power. This readily available capacity could help make up for the limited rates of fire and magazine sizes characteristic of smaller ships.

Fast sea lift capacity continues to be an orphan stepchild which only gets attention when its need becomes critical. This predicament is understandable when the anticipated utility of these ships is limited to major contingencies and war. But if they could be used for more than this, if their immense capacities could be employed across the range of naval missions, synergistic cooperativity would result. Very large multi-use ships can have the capability to handle containerized cargo, role on role off equipment, serve as fleet replenishment ships, and serve as immense ready service magazines for anti-air, anti-surface, and even shore bombardment in support of amphibious operations, in the form of multiple launch rocket systems, (MLRS). We continue to bemoan the lack of effective naval gunfire support yet this function could be well served if MLRS capability was inherent in a fraction of the shipping dedicated to amphibious operations. All of these functions could be made up into modules which would be mated into

packages tailored for the mission assigned to the SAG. The very large cargo carrying capability of these ships would be in excess of that which is normally needed for peacetime operations. This reserve potential would serve as organic surge capacity instantly available for sealift intensive contingencies.



## NOTIONAL ENHANCED CAPABILITY REPLENISHMENT SHIP

### CONCLUSION

The requirements for aircraft carriers, nuclear submarines and other "high end" ships remains, but the need for more numbers of ships is rising faster than our ability to afford them. Peace dividends aside, a new and as yet undetermined maritime strategy will certainly recognize the expanded demand for forward deployed warships. Numbers do count. Also some roles and missions do not lend themselves to the economic use of Capital Ships. However, low mix surface action groups, fully connected and augmented by enhanced capability replenishment ships can perform a very

broad range of tasks, and fill in the gaps left by  
insufficient numbers of more capable units.

#### BIBLIOGRAPHY

1. Cables, James. GUNBOAT DIPLOMACY, 1919-1979. London: The Macmillan Press LTD, 1981.
2. "CONGRESS/ADMINISTRATION, \$278.3 BILLION DEFENSE BUDGET SET TO DROP 14% MORE BY 1997." Armed Forces Journal International (March 1991) 17-22.
3. Gorshkov, S. G. THE SEA POWER OF THE STATE. Annapolis: Naval Institute Press, 1979.
4. Hibbs, Russell. "STEADY AS YOU GO." Proceedings (February 1991), 30-35.
5. Holzer, Robert. "SOVIET NAVY'S MODERNIZATION DUCKS CUTS, PROCEEDS FULL SPEED." Defense News, 18 March 1991, p.7.
6. Holzer, Russell. "SURFACE WARFARE REVIEW DELAYS IMPROVED DDG-51." Defense News, 11 March 1991, p. 3.
7. Luttwak, Edward N. THE POLITICAL USES OF SEA POWER. Baltimore and London: The Johns Hopkins University Press, 1974.
8. Myers, Charles E. "LITTORAL WARFARE: BACK TO THE FUTURE." Proceedings (November 1990), 48-55.
9. NATIONAL SECURITY OF THE UNITED STATES. The White House, March 1990.
10. O'Neil, William D. "DON'T GIVE UP THE SHIP." Proceedings (January 1991), 46-51.
11. Tellis, Ashley J. SECURING THE BARRACK: THE LOGIC, STRUCTURE, AND OBJECTIVES OF INDIA'S NAVAL EXPANSION, PART II. Newport Rhode Island: Naval War College Review, (Autumn) 1990.
12. Vlahos, Michael. "2010-A NEW NAVY." Proceedings (January 1991), 63-67.
13. Westcott, Allen, ed. MAHAN ON NAVAL WARFARE. Boston: Little, Brown and Company, 1948.